Development of an

# Emergency Notification System

for

# Carbon County


**A grant application submitted by the**

## Carbon County Sheriff's Office

**to the**

## Montana Land Information Act Grant Program

**February 15, 2011**

## Primary Applicant:

Name of principle individual**: Thomas Rieger, Sheriff**

Name of agency\entity: **Carbon County Sheriff's Office (CCSO)**

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## Project Partner:

Name of contact**: Becky Berger, 911 Program Manager**

Name of agency: **Montana Public Safety Services Bureau**

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Date Submitted (Required): Date Received by State:

Descriptive Title of Applicant's Project (Required):

**Development of an Emergency Notification System for Carbon County**

# 1. Relevance and Public Benefit

The 2008 Cascade Fire burned more than 10,000 acres of National Forest in Carbon County and resulted in the evacuation of at least 75 homes. The entire community of Red Lodge was on standby evacuation during the incident. Local law enforcement officials, including the Carbon County Sheriff's Office (CCSO), exhausted most of their resources in an effort to notify and evacuate nearby residents. Had the fire not been contained, the County may not have been able to notify and evacuate the residents from the area in a timely manner.

An **Emergency Notification System (ENS)** could have improved communication with area residents and assisted with the evacuation during the Cascade fire. An ENS can distribute time-sensitive emergency messages in the form of voice recordings, text messages and email. The system can broadcast to geographically-targeted areas during an emergency that requires immediate action and where rapid and accurate notification to citizens is essential for life safety. In addition to wild fire incidents, an ENS could also be used to notify residents during a flood, HAZMAT accident, utility outage, water contamination event, missing persons, bomb threat, hostage or lock-down situation.

However, an ENS will only broadcast to land-line telephone numbers stored within in the 911 system unless cellular and Voice over Internet Protocol (VoIP) telephone customers are included by some other means. Companies that offer these services (e.g., Verizon and Vonage) are not required to release telephone numbers and address locations even for 911 purposes. Cellular and VoIP customers, which are increasing at a very high rate, would have to voluntarily provide their contact information in order to be included in the ENS.

The primary goal of the CCSO is to develop a robust ENS that is integrated with the County's GIS structure layer. The structures database would be modified to include ENS contact information including cellular and VoIP phone numbers and also email addresses. This "enhanced" structure layer would facilitate integration with 911 operations and may also serve as a future model for this MSDI framework layer. For this reason, the project will meet **Goal 1, Objective 1 - Establish, publish, and utilize standards, best practices and data dictionaries for MSDI framework layers**. Funding of this project will also meet **Goal 1, Objective 3 – to develop GIS data that will support public safety and response services**. Implementing a system to notify residents of emergency situations will reduce the burden of multiple law enforcement units in Carbon County including the Sheriff's Office, City Police Departments, Montana Highway Patrol, and US Forest Service. Most importantly, residents of the County will benefit from by being informed of situations that may endanger their lives.

# 2. Scope of Work

## 2.1.Goals and Objectives

**Goal 1**. C**reate a functional ENS for Carbon County**. The County plans to develop a GIS-based ENS that would be able to target a geographic area and deploy an emergency message via land-line (voice recording), cell phone (voice recording or text message) and email. The end product the CCSO envisions would allow the 911 dispatcher to select structures within the GIS, quickly generate a list of telephone numbers and emails associated with the structure and send the list to a regional call center for instantaneous call dialing/email (*see callout box for ENS deployment example involving Bridger High School*).

### Hypothetical ENS Deployment Scenario: Bridger High School Bomb Threat

At 7:45 am, shortly before classes begin, the Bridger High School receives a legitimate bomb threat. The school calls 911 and notifies authorities of the situation. The Dispatcher initiates an Emergency Notification System (ENS) deployment whereby every structure within a 1000 foot radius of the school is targeted. The ENS immediately generates a list of phone numbers, both land-line and cellular, and sends out a combination of voice recordings and text messages to students, faculty, parents and nearby residents warning them of the hazard. Because the School encouraged students and parent to enroll in the County ENS system at the beginning of the school year, the majority of people associated with the school were sent a notification instructing them to vacate the school grounds until further noticed.

**Goal 2. Register County residents in the ENS program.** One out of every four Americans has given up their landline phone and is now using their cellular phone exclusively [1]. Unfortunately, cellular and VoIP service providers are not required to release their customer information for 911 purposes. If these national statistics hold true for Carbon County, the ENS would only be able to contact about 25% of County residents in the event of an emergency. Therefore, the success of the County's ENS will be largely dependent upon the voluntary submission of cellular and VoIP numbers.

*Objective 2.1.* The objective for Goal 2 is to have 30% of Carbon County residents (approximately 3,000) complete ENS registration by February 2012.

**Goal 3. Test and evaluate the ENS.** To ensure that the ENS is fully integrated with the 911 database and working properly, the County will design and initiate a test of the system using a live emergency scenario.

Objective 3.1. The objective for Goal 3 is to complete the ENS test and draft a document that evaluates the effectiveness of the ENS by January 2012.

[1] Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, January–June 2010. National Center for Health Statistics. December 2010. Available from: http://www.cdc.gov/nchs/nhis.htm.

## 2.2.Tasks or Activities

**Task 1. Solicit and hire qualified contractors**. The County will follow State of Montana procurement guidelines to issue a limited solicitation and hire the following qualified contractors: 1) a consultant to structures framework layer and setup/test the ENS and 2) a Web developer to create a volunteer ENS registry website for County.

**Task 2. Design and create a Self Registration Portal (SRP).** The project manager and consultant will work together with the Web developer to create a database-driven SRP that facilitates registration of cellular/VOIP phone numbers and emails into the ENS. The registrant will be able to enter a telephone number/email into the system and associate it with an addressed location representing a residence, place of work, school, etc.

The CCSO envisions an SRP with similar content and functionality to the one hosted by Lewis and Clark County (www.co.lewis-clark.mt.us). However, Carbon County would also like to include the ability to register emails in addition to phone numbers and associate these with multiple physical addresses. Cellular phones represent a mobile technology that are used at home, work and school and should not be assigned to just one physical address.

The SRP will include registration instructions and will address frequently asked questions about the ENS and privacy concerns. However, the CCSO anticipates questions and concerns that will need to be address by a person. For this reason, the CCSO will designate a receptionist to provide telephone support for County residents attempting to use the SRP.

**Task 3. Integrate the structures framework with the ENS**. The consultant will be directed to re-design the County's structures layer to make it compatible with the SRP and ENS. Specifically, contact information entered into the SRP will be transferred to a compatible relational table in the geodatabase. A one-to-many relationship will be built between the ENS contact table and the structures layer to support multiple phone numbers to one structure. The CCSO believes this design is unique to most other Counties involved with cell phone registration and that this design may serve as an "enhanced" model the MSDI structure framework layer.

**Task 4. Setup GeoCast Web ENS service**. The consultant will also set up the ENS Web-based application, GeoCast Web, from PlantCML. This IP-enabled application brings the County's telephone and GIS data together targeting communication to hundreds or even thousands of homes, schools, or businesses using either on-site telephone lines or dynamically route call-outs to any other hosting facility.

When complete, the dispatcher will simply log into a secure website to view the County's street-level maps, and select notification area(s) of any size or shape. The software intuitively builds a contact list, engaging people based on their physical location or proximity to an incident. Messages, which are easily prepared on the fly or selected from pre-recorded ones, provide recipients full situation details or potentially life-saving instructions.

**Task 5. Develop marketing plan to promote the ENS/SRP**. With completion of the SRP, the consultant and the project manager will co-develop a marketing plan to promote the ENS and encourage registration via the Website. Paid advertisements in local newspapers and radio, along with email/websites will be used to solicit Portal registration. The consultant will also explore ways in which the County can integrate ENS registration into their regular business services such as new construction address requests, vehicle registrations and septic permit applications.

**Task 6. Establish Standard Operation Procedures (SOP) for ENS deployment**. A SOP manual is critical document for the successful operation of the ENS. The consultant will take the lead role in drafting the ENS SOP manual that will address the following questions:

- *What emergency situation constitutes and ENS deployment?*
- *Who has the authority to launch a notification?*
- *What determines the geographic area for notification?*
- *What are the appropriate messages/instructions that should be included in the notifications?*

The SOP will be reviewed and endorsed by the Local Emergency Planning Committee (LEPC) and recommended for adoption by the County Commissioners.

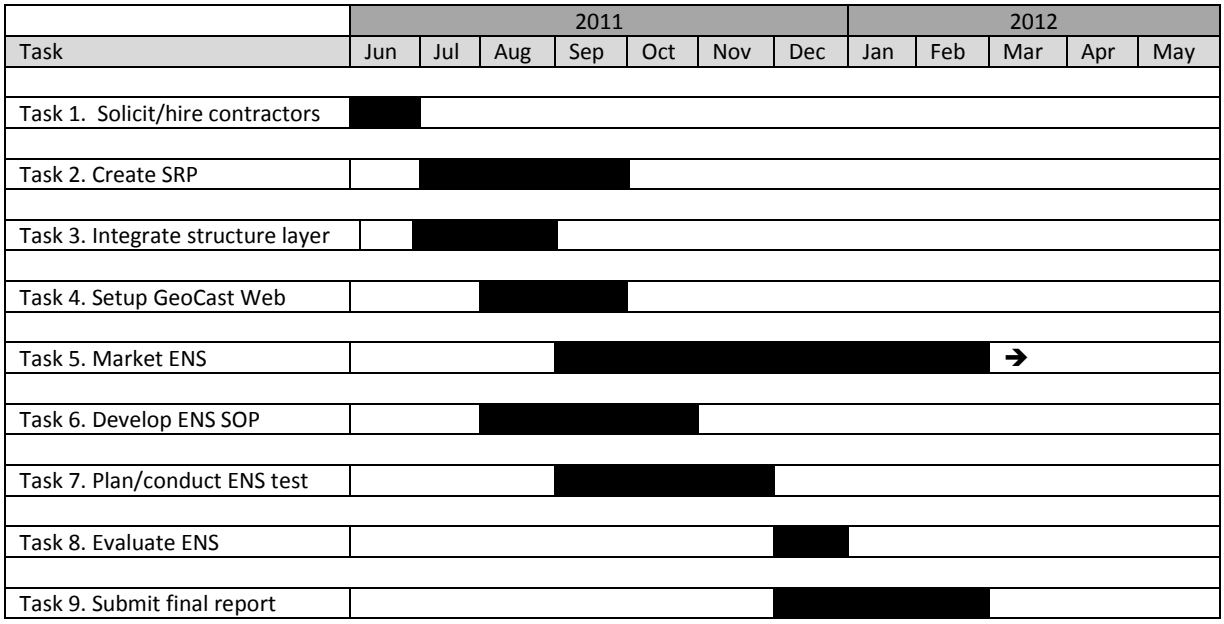
**Task 7. Organize and conduct a live exercise to test ENS**. The project manager and consultant will coordinate with the Carbon County Local Emergency Planning Committee (LEPC) to develop a mock emergency scenario that would require ENS deployment. The LEPC has conducted similar table-top and functional exercises in the past and will be used to help plan and execute a demonstration of the ENS.

**Task 8. Evaluate ENS test and recommend modifications.** Upon completion of the ENS test, the project coordinator along with the LEPC will evaluate the ENS and draft recommendations to improve the ENS. Specifically, a document will be drafted that 1) evaluates the results of test, 2) identifies the strengths/weaknesses of system, and 3) outlines a plan to improve ENS performance

**Task 9. Submit final report to Base Map Service Center and present results**. A final project report will be drafted by the consultant and submitted to the BMSC. The report will contain the Standard Operating Procedures and the results of the ENS test scenario. The final report will also contain a proposed database design for the MSDI structures layer that will make it more compatible with similar notification systems. A presentation of the project will also be made at the 2012 MAGIP conference.

## 2.3.Project Schedule

This project has a planned duration of nine months starting in June 2011 and ending in February 2012. The following timeline shows the duration (by month) of the nine planned tasks.



# 3. Project Management and Organization Capability

Carbon County has the project management and organizational capacity needed to complete this project on time and within budget. The following groups offer a unique combination knowledge, technical skills and experience necessary to accomplish the goals outlined in this proposal.

**Carbon County Sheriff's Office (CCSO).** The CCSO oversees the operation of the County's Public Safety Answering Point or PSAP located in the City of Red Lodge. Sheriff Tom Rieger and Under Sheriff Dan McJunkin have been involved with large incidents such as the Willie and Cascade Fires and bring many years of law enforcement and emergency management experience to the project. Mr. Rieger and Mr. McJunkin have managed other public safety grants in the past and will serve as grant administrator to this project. The CCSO will also provide telephone support to assist County residents with ENS registration over the Web.

**Disaster & Emergency Services (DES) Office.** The DES office assists with public safety communication systems and with the maintenance of the 911 GIS databases. Directed by Darrel Krum, the Office will provide support in the development of the public safety messages and instructions. The DES office also brings experience with management and administration of MLIA grants. The DES office and Red Lodge Fire & Rescue were the recipient of a 2009 MLIA grant award to design and develop a County-wide road and address GeoAtlas. This project was successfully completed in December 2010 with high merit from Stewart Kirkpatrick of the BMSC.

**Local Emergency Planning Committee (LEPC).** The LEPC will serve as an advisory committee to help with the development of the SOP and organization of the ENS exercise. The LEPC is a diverse group of public safety and health professionals from around the County that meet monthly to discuss emergency planning issues. They have organized table –top and functional exercises in the past and have agreed to assist with the development and execution of a live scenario involving ENS deployment.

**GIS Manager.** The CCSO and DES office are supported by Tom Kohley, a contractor who has managed the 911 GIS databases for the County for the past six years. Mr. Kohley is a GISP and has experience with the technical systems of the County's PSAP. He has worked on two previous MLIA grants for both the County and City of Red Lodge and is very familiar with the scope and grant requirements of the program. The County will allow Mr. Kohley to serve as project manager of the MLIA grant under his existing contract with the County. This contribution is shown as an in-kind match by the County in the budget section of this proposal. *(Note: The contractor needed to redesign the GIS databases, setup the ENS and develop the SOP will be selected through a solicitation/hiring process that conforms to State procurement guidelines).*

**Public Safety Services Bureau.** Located in Helena, the PSSB manages statewide planning of public safety communications and the State's 911 program. Becky Berger, 911 program manager, will assist by sharing her experience with other ENS implementations around the State. This project can take advantage of the successes and failures from other PSAPs and avoid "re-inventing the wheel." The PSSB is also considered a financial partner to the project as they will be dispersing State 911 funds to the County as a match for this grant.

# 4. Budget Justification Narrative and Tables

The total budget for this project is $33,180 with $22,330 being requested from the MLIA grant program. The applicant will contribute an in-kind total of $5,550 towards the project. The Public Safety Services Bureau has approved the distribution of $5,300 in State 911 funds to the County for this project as listed in the "Other Share" column of the budget.

**MLIA Share**. The MLIA share will be used mostly for staffing and contractual positions. Specifically, $1,500 of MLIA funding will be used to help staff a receptionist at the CCSO to provide telephone support for ENS registrants. $16,500 of the MLIA share will be used cover the costs associated with hiring contractors needed to complete the technical aspects of the project. $14,500 will be used to a hire an ENS consultant and $2,000 for a Web developer to design and create the Self Registration Portal for the ENS. Marketing and promotion of the Portal will cost $1,400 which includes paid advertisements in local papers and radio.

$2,000 of MLIA funding will be used to purchase a new desktop personal computer for use in the PSAP to run the notification system. The CCSO would like to present the results of the project at the 2012 MAGIP spring conference and are requesting $400 to cover travel and registration expenses. The remaining $200 in MLIA funds will be used for miscellaneous supplies.

**Applicant Share.** In-kind contributions from the applicant include approximately 25 hours ($1,000) of the Sheriff and Under Sheriff's time (and fringe) to administer the grant and provide project oversight. The applicant will also contribute $1,500 worth of receptionist's time (and fringe) to cover telephone support for the Portal. The time equivalent to $2500 will also be contributed by the County to manage the project.

**Other Share.** Funds from the State 911 account will be used to offset the total contractor cost; $3,000 for the ENS consultant and $2,000 for the Web developer. Approximately $300 of State funds will also be used to cover the fees associated with the regional call center used to send out the test notifications ($300).

Long Term maintenance of the ENS will be funded primarily by State 911 funds that are distributed quarterly to the County. These funds are generated by a small 911 service fee that is charged to telephone customers on a monthly cycle.

| Category | MLIA Share | Applicant Share | Other Share | Total |
|---|---|---|---|---|
| **a. Personnel** | | | | |
| Grant administrator | $ - | $ 1,000 | | $ 1,000 |
| Receptionist | $ 1,500 | $ 1,500 | | $ 3,000 |
| **a.1 Fringe Benefits** | | | | |
| | $ 330 | $ 550 | | $ 880 |
| **b. Travel** | | | | |
| MAGIP Presentation | $ 400 | | | $ 400 |
| **c. Equipment** | | | | |
| Desktop PC/softw are for ENS | $ 2,000 | | | $ 2,000 |
| **d. Supplies** | | | | |
| Misc. Supplies | $ 200 | | | $ 200 |
| **e. Contractual** | | | | |
| ENS Consultant | $ 14,500 | | $ 3,000 | $ 17,500 |
| Web Developer | $ 2,000 | | $ 2,000 | $ 4,000 |
| Project Manager | $ - | $ 2,500 | | $ 2,500 |
| **f. Other** | | | | |
| Paid advertising to market SRP | $ 1,400 | | | $ 1,400 |
| Call Center Fees for Testing ENS | | | $ 300 | $ 300 |
| **Totals** | $ 22,330 | $ 5,550 | $ 5,300 | $ 33,180 |

## 5. Statements of Support

See attached letters of support from **Becky Berger**, 911 Program Manager for the Public Safety Services Bureau, State of Montana and **Michael Fashoway**, Structures Framework & Address Data Coordinator, Base Map Service Center.

## 6. Renewable Grant Accountability Narrative

The Carbon County Sheriff's Office did not apply for a fiscal year 2011 MLIA grant so no progress report is included in this application.

## 7. Signatures

**Authorizing Statement**

I hereby certify that the information and all statements in this application are true, complete and accurate to the best of my knowledge and that the project or activity complies with all applicable state, local and federal laws and regulations.

I further certify that this project will comply with applicable statutory and regulatory standards.

I further certify that I am (by my signature) authorized to enter into a binding agreement with the Montana Department of Administration to obtain a grant if this application receives approval.

Thomas Rieger, Carbon County Sheriff

Doug Tucker, Chairman – Carbon County Board of Commissioners